SEQUENCE LISTING

```
<110> INVITROGEN CORPORATION
      CARRINO, John
      FAN, James
      BENNETT, Robert
      CHESNUT, Jonathan
      GLEESON, Martin
      MADDEN, Knut
<120> COMPOSITIONS AND METHODS FOR RAPIDLY GENERATING RECOMBINANT NUCLEIC
ACID MOLECULES
<130> INVIT1290-2
<150> US 60/254,510
<151> 2000-12-08
<150> US 60/326,092
<151> 2001-09-28
<160> 47
<170> PatentIn version 3.0
<210> 1
<211> 27
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> PRIMER MTH1
<400> 1
                                                                       27
tatgtatcat acacatacga tttaggt
<210> 2
<211> 20
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> PRIMER MTH2
<400> 2
                                                                       20
accgcctctc cccgcgcgtt
<210> 3
<211> 34
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> PRIMER GAL4r2
<400> 3
                                                                       34
gttccgaagg gggcgataca gtcaactgtc tttg
```

<210> 4

<212>	36 DNA ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER MTH5	
<400>		2.0
ttggcc	aagg gtatctagaa gcttctgcag acgcgt	36
<210>	5	
<211>	34	
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER VP16r2	
<400>	5	
gttccg	aagg gccaccgtac tcgtcaattc caag	34
<210>	6	
<211>	36	
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER SV40pAF	
<400>	6	
ggccaa	aagg gaacttgttt attgcagctt ataatg	36
	7	
<211>		
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>	PRIMED CIVIO A	
<223>	PRIMER SV40pAr	
<400>		
ctctga	cttg agcgtcgatt tt	22
<210>		
<211>		
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER p53f2	
<400>	8	
	aagg ggaattccct gtcaccgaga cc	32
<210>	9	
	34	

<212> <213>	DNA ARTIFICIAL SEQUENCE	
<220> <223>	PRIMER SVTf2	
<400> cggaac	9 aagg ggaattcccg gggatctgga attc	34
<210>		
<211> <212>	29 DNA	
<213>		
<220>	PRIMER CMVr2	
\2237	TRITIDIC CITY I B	
<400>		0.0
tcgaaa	gggt cgaggtcgac ctgcagctg	29
<210> <211>	11	
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER CMVf	
<400>	11	
		20
aattca	catt gattattgag tagtta	26
		26
<210><211>	12	26
<210><211><212>	12 30 DNA	26
<210><211><212>	12 30	26
<210><211><212><212><213>	12 30 DNA ARTIFICIAL SEQUENCE	26
<210><211><212><212><213>	12 30 DNA	26
<210><211><211><212><213><223><400>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof	
<210><211><211><212><213><223><400>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof	30
<210> <211> <212> <213> <223> <400> tcgaaa	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag	
<210> <211> <211> <212> <213> <223> <400> tcgaaa <210>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag	
<210> <211> <212> <213> <223> <400> tcgaaa	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27	
<210> <211> <211> <212> <213> <220> <223> <400> tcgaaa <210> <211> <212>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27	
<210> <211> <212> <213> <223> <223> <400> tcgaaa <210> <211> <212> <213> <220>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA ARTIFICIAL SEQUENCE	
<210> <211> <212> <213> <223> <223> <400> tcgaaa <210> <211> <212> <213> <220>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA	
<210> <211> <212> <213> <223> <223> <400> tcgaaa <210> <211> <212> <213> <400> <231> <400>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Notr 13	30
<210> <211> <212> <213> <223> <223> <400> tcgaaa <210> <211> <212> <213> <400> <231> <400>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Notr	
<210> <211> <212> <213> <223> <400> tcgaaa <211> <211> <2213> <400> ggccaa	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Notr 13 gggt ttgtagagct catccat	30
<210> <211> <212> <213> <223> <223> <400> tcgaaa <210> <211> <212> <213> <400> <231> <400>	12 30 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Xhof 12 gggt aatggccagc aaaggagaag 13 27 DNA ARTIFICIAL SEQUENCE PRIMER GFP-Notr 13	30

<213>	ARTIFICIAL SEQUENCE	
<220>		
	PRIMER BGHf2	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
<400>	14	
	gggt ctgaatgggg ccgcatagt	29
<210>	15	
<211>	20	
<212>	DNA	
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER BGHr	
<400>	15	20
aagcca	taga gcccgggcca	20
010	1.6	
<210>	16	
	31	
<212>	ARTIFICIAL SEQUENCE	
<213>	ARTIFICIAL SEQUENCE	
<220>		
	PRIMER CMVr2	
12237		
<400>	16	
	aagg gtcgaggtcg acctgcagct g	31
<210>	17	
<211>	30	
	DNA	
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER GFPf3	
-4005	17	
<400>	raagg gatggccagc aaaggagaag	30
cggaac	aagg gacggccage aaaggagaag	
<210>	18	
	31	
<212>		
	ARTIFICIAL SEQUENCE	
<220>		
<223>	PRIMER GFPr3	
<400>	18	21
taggco	aagg gtttgtagag ctcatccatg c	31
	10	
<210>	19	
<211>	29	
<212>	DNA ARTIFICIAL SEQUENCE	
< 1.1.3 >	AKIIFICIAH DEVOENCE	

<220> <223>	PRIMER BGHf3					
<400>	<400> 19					
ggccta	aagg gtgaatgggg ccgcatagt	29				
<210>						
<211> <212>						
	ARTIFICIAL SEQUENCE					
<220>						
	PRIMER T7top					
<400>	20 gtaa tacgactcac tatagggagc caccatgggc ccttcggaac	50				
3~~53~						
<210>	21					
<211>						
<212>	DNA					
<213>	ARTIFICIAL SEQUENCE					
<220>						
<223>	PRIMER T7bottom					
<400>	21					
gttccg	aagg gcccatggtg gctccctata gtgagtcgta ttactccttc	50				
<210>	22					
<211> <212>						
	ARTIFICIAL SEQUENCE					
<220> <223>	PRIMER T7amp					
<400>	22 gtaa tacgactcac t	21				
3~~334						
<210>	23					
<211>						
<212>						
<213>	ARTIFICIAL SEQUENCE					
<220>						
	PRIMER T3top					
<400>	23					
	laagg gtccctttag tgagggttaa ttgcgcgc	38				
<210>						
<211>						
<212>	DNA ARTIFICIAL SEQUENCE					

<220> <223>	PRIMER T3bottom	
<400> gegege	24 aatt aaccctcact aaagggaccc tttaggcc	38
<210><211><211><212><213>	34	
<220> <223>	PRIMER lacZf2	
<400> cggaac	25 zaagg gatgatagat cccgtcgttt taca	34
<210><211><212><213>	32	
<220> <223>	PRIMER lacZ1k2	
<400> taggco	26 Caagg ggaccatttt caatccgcac ct	32
<210><211><211><212><213>	32	
<220> <223>	PRIMER lacZ2k2	
<400> taggc	27 caagg ggaggcactt caccgcttgc ca	32
<220> <223>	PRIMER lacZ3k2	
<400> taggo	28 caagg gtttgacacc agaccaactg gta	33
<220		

```
<223> CMV ELEMENT
<400> 29
                                                                      9
tcgaaaggg
<210> 30
<211> 9
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> GFP ELEMENT
<400> 30
                                                                       9
tcgaaaggg
<210> 31
<211> 9
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> GFP ELEMENT
<400> 31
                                                                       9
ggccaaggg
<210> 32
<211> 9
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> BGH ELEMENT
<400> 32
                                                                       9
ggccaaggg
<210> 33
<211> 11
<212> DNA
<213> ARTIFICIAL SEQUENCE
<220>
<223> CMV ELEMENT
<400> 33
                                                                      11
gttccgaagg g
<210> 34
 <211> 11
 <212> DNA
 <213> ARTIFICIAL SEQUENCE
 <220>
 <223> GFP ELEMENT
```

<400> cggaaca		11
<210>	35	
<211>	9	
<212>		
	ARTIFICIAL SEQUENCE	
<213>	ARITHICIAL SEQUENCE	
<220>		
<223>	GFP ELEMENT	
<400>	35	9
ggccaag	333	9
<210>	36	
<211>	9	
<212>	DNA	
	ARTIFICIAL SEQUENCE	
<220>		
	BGH ELEMENT	
12237		
<400>	36	
		9
ggccaa	333	
.010	27	
<210>	37	
<211>	11	
<212>	DNA	
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	CMV ELEMENT	
	37	11
gttccg	aagg g	
<210>	38	
<211>	11	
<212>	DNA	
<213>	ARTIFICIAL SEQUENCE	
<220>		
<223>	GFP ELEMENT	
<400>	38	_
cqqaac	aagg g	11
<210>	39	
<211>	11	
<212>		
<213>	ARTIFICIAL SEQUENCE	
<220>		
	GFP ELEMENT	

<400> 39 taggccaagg g	11
<210> 40 <211> 11 <212> DNA <213> ARTIFICIAL SEQUENCE	
<220> <223> BGH ELEMENT	
<400> 40 ggcctaaagg g	11
<210> 41 <211> 11 <212> DNA <213> ARTIFICIAL SEQUENCE	
<220> <223> Segment of amplified nucleic acid molecule	
<400> 41 atccggttcc c	11
<210> 42 <211> 11 <212> DNA <213> ARTIFICIAL SEQUENCE	
<220> <223> Segment of amplified nucleic acid molecule	
<400> 42 gccttgttcc c	11
<210> 43 <211> 11 <212> DNA <213> ARTIFICIAL SEQUENCE	
<220> <223> Segment of TOPO adapted element	
<400> 43 ggccataagg g	11
<210> 44 <211> 16 <212> DNA <213> ARTIFICIAL SEQUENCE	
<220> <223> Segment of nucleic acid molecule	
<400> 44 cccttggcca taaggg	16

<210>	4.5		
	16		
<211>			
	ARTIFICIAL	SEQUENCE	
12107	111(11111111111111111111111111111111111		
<220>			
<223>	Segment of	nucleic acid molecule	
	_		
<400>	45		
cccttt	aggc caaggg		16
010	1.5		
<210> <211>			
<211>			
	ARTIFICIAL	SEOUENCE	
12137	111111111111		
<220>			
<223>	Segment of	nucleic acid molecule	
	46		16
cccttc	ggaa caaggg		10
<210>	47		
<211>			
<212>			
<213>	ARTIFICIAL	SEQUENCE	
<220>			
<223>	Segment of	nucleic acid molecule	
400	4.7		
<400>	ttcc daaddd		16